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UNDERGRADUATE STUDENTS' ROLE IN SPREADING AND CONTROLLING THE ASSESSMENT SYSTEM

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Abstract

The Clinical-Basic Sessions (CBS) are a compulsory practical activity of the new Degree in Medicine course curriculum of the Complutense University of Madrid. They are integrated in the strategy of transversal competences improvement. Students can participate in a team work studying and presenting a clinical case as *speakers* or, if they are students of the sixth course, as *tutors*, or can act as *listener assessors* of the public presentation of the cases and the speakers. Teachers can participate tutoring a case and evaluating the students participating in it, or can act as speakers' assessors in a classroom where other clinical cases are presented.

In 2013/2014, important changes in the evaluation process and the evaluation criteria were introduced. First of all, objective tools were used so that students knew which aspects will be evaluated and evaluators had a guide for assessment. Two rubrics were created, one for the continuous evaluation of the students in each clinical case (rubric A), and the other one for *listener assessors* to evaluate the speakers' presentation (rubric B). Also, the continuous evaluation was made not only by *tutor teachers* but also by the team students (peer evaluation).

Secondly, the evaluation became telematic. Rubrics A and B were transferred into forms A and B using Google Drive. This way, evaluators have to complete the forms to do their assessment. The attendance control system need to be implemented in order to prove the *listener assessor*'s participation. For this purpose, a double code system was set up, one for each case and a second one for each case's assessor. Both codes were needed to complete the on line forms.

A new figure was created to inform participants correctly, the *Tutor Students for the Evaluation Control*, a sixth course student who was assigned to no clinical case. Its role was very important: giving information properly to the working teams, explaining what the rubrics are and the student assessor role, informing the listener evaluators in the classrooms, managing the attendance control and explaining how to digitalize the assessments. Also, assessors were asked to complete the satisfaction surveys included in the forms. Several documents were prepared and uploaded to a Virtual Campus space to make their tasks easier.

39 students worked as *Tutor Students for the Evaluation Control*, explaining the new system to 104 teams of teachers and students and managing the 26 classrooms where 52 cases were presented. Positive results were achieved. There were no incidents even though the massive participation. Actually, 33% of the enrolled students in the degree participated in the clinical cases and 70% took part as *listener assessors*. The electronic forms were sent promptly, collecting 50% of the shipments between the 4th and 7th day. Also, participation in the surveys surpassed 90%. Finally, 70% of the survey's respondents, declared to recommend maintaining the evaluation system. We can conclude that the new figure has achieved its aims, contributing definitely to the implementation of CBS evaluation implementation. In spite of its success, it is necessary to continue working to implement the rubrics and to drive forward into learning by assessing.

Keywords: High Education, Innovation, Assessment, Management, Student.

1 INTRODUCTION

The new Degree in Medicine course curriculum of the Complutense University of Madrid plans a strategy for the improvement of transversal competences based on three cornerstones [1]:

- a curriculum revolving around clinical services from third to sixth courses, which means daily and direct contact not only with teachers but also with sanitary staff and patients,
- an Objective Structured Clinical Examination (OSCE), which is a form of performance-based testing used to measure candidates' clinical competence, and

- the Clinical-Basic Sessions (CBS), which are a compulsory practical activity included in the subject Clinical Practice III.

Students enrolled in CBS participate in a team work studying and presenting a clinical case as *speakers* or, if they are students of the sixth course, as *tutor students*. During the working weeks speakers go in depth in a clinical case studying it from its basic origin, guided by the student tutor together with two *tutor teachers*, one of basic subjects and a clinician. *Speakers* must prepare a public oral defense in front of an examining jury made out of *classroom teachers* and of *listener students*, the whole of them acting as assessors and grading the *speakers*.

The High European Education Area (EHEA) strengthens students in their role as leading actors and centred the educational process on the outcomes and the competences development. Therefore, a wide range of learning and teaching methodologies have arised focusing on students and fostering active, responsible and committed attitudes [2, 3]. CBS are a good example of these pedagogical and didactical innovations since they look for transversal competences development [4, 5].

Assessment has become a key element in the teaching-learning process. Scientific community agrees on the need of improving the learning outcomes of the university students and point out that innovations in the assessment are essentials [6]. As Murphy [7] and Margalef [8] noted, the formative evaluation goes beyond the qualification, quantification or evaluation of knowledge, because it adopts a regulatory feature in the process of learning. Therefore students plan their studies and their learning depending on the kind of evaluation they have to face. A well designed assessment system supply information to the students about their competence progressive achievement and about their strong and weak points. A large number of authors have published innovating assessment experiences [9-14] that highlight that evaluation can be used to enhance competence-based education [15, 16].

A group made up of four undergraduate students and three teachers worked together in order to analyse the CBS pros and cons. As the result of this analysis, Ji et al. [17] stated that CBS assessment system should be improved in several aspects and Herencias et al. [18] proposed a new evaluation model using rubrics that can provide more rigor, reliability and objectivity. Rubrics were designed to evaluate the whole work done (*continuous evaluation*), and not just the exposition, analyzing group and individual aspects. They also proposed that *speakers* must be involved in the assessment through a peer evaluation.

In 2013/14 a first experience applying the new assessment system was achieved. This paper shows the changes made, analyses the implementation process and focuses on the role of a new figure created for spreading and controlling the assessment, the *Tutor Student for the Evaluation Control*.

2 METHODOLOGY

2.1 The new assessment tools: the rubrics

Rubrics are tools that permit evaluating by describing the aspects to be assessed with their achievement levels, so that each achievement level corresponds with a determined grade. Because of this, they are considered useful tools for improving teaching and learning [19, 20]. Andrade and Du [21] state that students using rubrics focus their strength to produce higher quality work and get significant learning and better grades. Panadero and Johnson [22] review the influence of rubrics in formative assessment and report several benefits for the students such as more transparency, anxiety reduction, self-assessment guide feedback and personal autonomy increase. Teachers' appraisals on rubrics value their qualities for grading: objectivity, speed and accuracy [23].

In our proposal, Herencias et al. [18] designed two rubrics. Rubric A allows the intra-team evaluation of each *speaker*, being assessed each one equally by their *tutor teachers* and by peer evaluation. This rubric permits a continuous evaluation of the work made by each *speaker*. Rubric B allows the evaluation of the clinical case expositions by *classroom teachers* and by *listener students*. Individual and group items were included in both rubrics.

2.2 The new assessment environment: Google-Drive forms

Our rubrics were presented online. For that purpose both rubrics were transferred into two Google Drive forms. Additionally, a short survey was included at the end of each form. Electronic rubrics have several advantages compared with traditional paper-and-pencil versions, as was already pointed out Ji et al. [24]. To facilitate the online evaluation a Control Sheet with the rubric B was provided. This way,

listeners of the presentations could write down on it and then they have just to transfer their grades to the electronic forms.

2.3 The spreading of the new assessment system

The implementation of the new evaluation system required a well designed spreading procedure since it is clear that a badly performed communication and information would lead to refusal and failure. Considering that it was not possible to join all the participants, teachers and students, it was decided to bet on involving students on the spreading.

The informative task was carried out by two different ways:

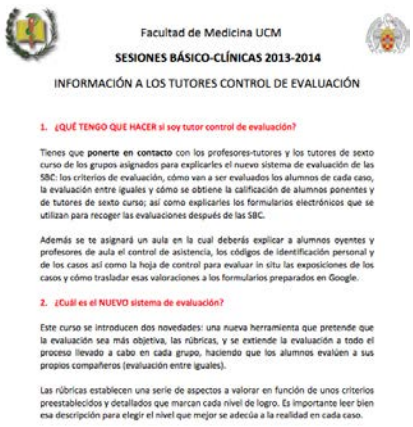
A) The *Tutor Students for the Evaluation Control*, a new figure specifically created for this purpose. They are senior students who participate in no clinical case, but work as tutors controlling the evaluation.

   This figure has a dual function:

   - Every one was assigned to one or two clinical cases, and has to explain to its members, teachers and students, the new evaluative criteria, the intra-team rubric, how students will be evaluated and the students' role in peer assessment. It was established that each *tutor student for the evaluation control* must meet at least once with its teams.
   - Every one was assigned to a classroom (Fig. 1), where before the presentations of the cases, he should inform to the *classroom teachers* and to the *listener students* on the new evaluation system. He also should control the cases' and speakers' order and have got Control Sheets available to the assessors.

Fig. 1. *Tutor student for the evaluation control* and speakers before a case presentation.

Before doing their role, the *tutor students for the evaluation control* were called to a meeting to be informed. Several documents such as an Informative Document (Fig. 2), Frequently Asked Questions (FAQs) and a Control Sheet were provided to them in order to make easier their task by CBS organizational and rubrics managers.



Facultad de Medicina UCM

SESIONES BÁSICO-CLÍNICAS 2013-2014

INFORMACIÓN A LOS TUTORES CONTROL DE EVALUACIÓN

1. ¿QUÉ TENGO QUE HACER si soy tutor control de evaluación?

Tienes que **ponerte en contacto** con los profesores-tutores y los tutores de sexto curso de los grupos asignados para explicarles el nuevo sistema de evaluación de las SBC: los criterios de evaluación, cómo van a ser evaluados los alumnos de cada caso, la evaluación entre iguales y cómo se obtiene la calificación de alumnos ponentes y de tutores de sexto curso; así como explicarles los formularios electrónicos que se utilizan para recoger las evaluaciones después de las SBC.

Además se te asignará un aula en la cual deberás explicar a alumnos oyentes y profesores de aula el control de asistencia, los códigos de identificación personal y de los casos así como la hoja de control para evaluar in situ las exposiciones de los casos y cómo trasladar esas valoraciones a los formularios preparados en Google.

2. ¿Cuál es el NUEVO sistema de evaluación?

Este curso se introducen dos novedades: una nueva herramienta que pretende que la evaluación sea más objetiva, las rúbricas, y se extiende la evaluación a todo el proceso llevado a cabo en cada grupo, haciendo que los alumnos evalúen a sus propios compañeros (evaluación entre iguales).

Las rúbricas establecen una serie de aspectos a valorar en función de unos criterios preestablecidos y detallados que marcan cada nivel de logro. Es importante leer bien esa descripción para elegir el nivel que mejor se adecúa a la realidad en cada caso.

Fig. 2. Informative Document screenshot.

B) The CBS Virtual Campus (VC), a digital space essential for communication and to support CBS participants (Fig. 3).

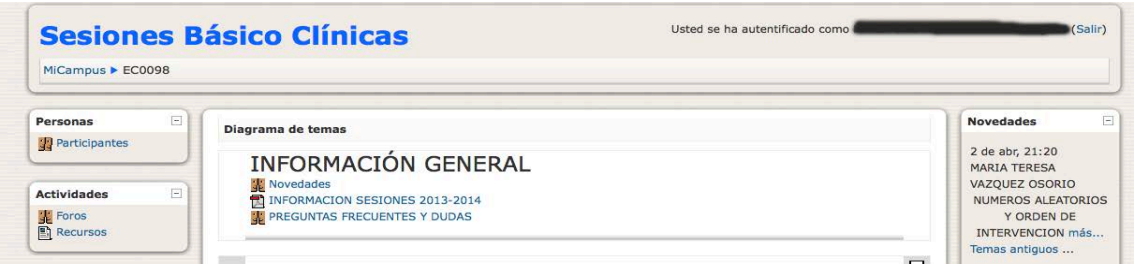


Fig. 3. CBS Virtual Campus screenshot.

Different resources were uploaded on it (Fig. 4) so that any participant could get the information at anytime.

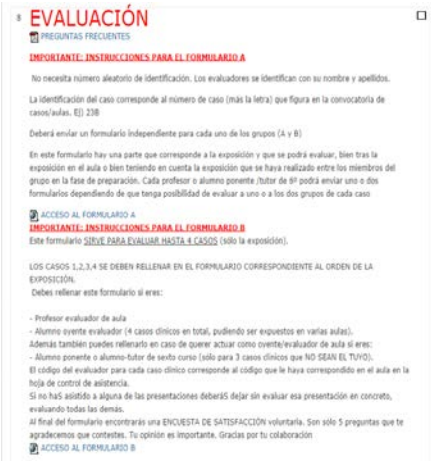


Fig. 4. CBS Virtual Campus screenshot showing the assessment information.

2.4 CBS Attendance Control

CBS are a compulsory activity that students must do twice as *speakers* and four times as *listener assessors*. An attendance control system is needed then and it should fulfill three goals:

- to control who has attended CBS;
- to control how many cases every student has attended;
- to identify the clinical cases evaluated by each assessor.

The designed attendance control was based on double alphanumerical codes:

- A code was assigned to each clinical case, depending on the center, classroom and time of presentation. The case's code was published just before its presentation so that only people in the classroom know it.
- A personal code is randomly assigned to every case's assessor. For that purpose code sheets were made up and each assessor wrote its identification number and its initials next to one of the codes (Fig. 5). This way each assessor wrote down two codes for each clinical case he wants to evaluate: the clinical case's and the personal one.

AULA DIA Y HORA	1A	3/28/2014 9:00
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1A J 318		
1A J 319		
1A J 320		

Fig. 5. Randomly personal codes sheet.

Tutor students for the evaluation control were charged of explaining the attendance control system. This was a key function since assessor won't be able to do the on line assessment if they don't have understood correctly the new system, and in that case, they wouldn't be able to prove their participation.

Tutor students for the evaluation control explain before every clinical case presentation the double code system and hang out the code sheets. At the end of each presentation they collect them and took a photo of them. Finally, they handed in to CBS managers. The clinical codes and the personal codes photos were available through the VC (Fig. 6).

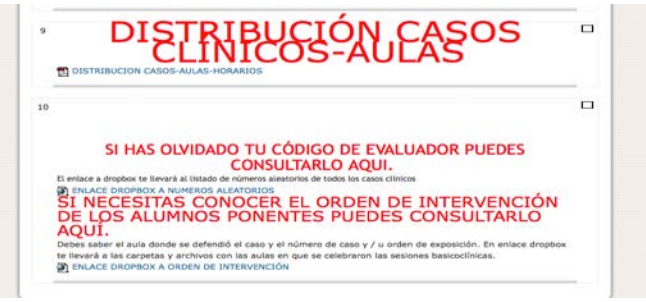

Fig. 6. VC screenshot showing the access to the codes.

2.5 *Tutor Students for the Evaluation Control's* Assessment

To assess the *tutor students for the evaluation control* a double way was carried out:

- A single question was included in each rubric so that teachers and students could evaluate the informative task done. Participants in each clinical case evaluated through rubric A if information provided was clear and enough and the availability of their *tutor students for the evaluation control* for solving questions. *Listener assessors* evaluated through rubric B the management of the classroom *tutor students for the evaluation control*, that is, whether they were able to explain clearly the new attendance control (double codes) and the new evaluation system (rubric and control sheet, deadline to fulfill the electronic forms).
- An indirect approach was to analyze the participation in assessments and surveys. It is clear that a bad done spreading would affect the turnout.

3 DATA ANALYSIS

Grades and opinions registered in the electronic forms were analyzed with 2010 Microsoft Excel program. Data were considered both globally and broken down according to the role category.

4 RESULTS AND DISCUSSION

The CBS mobilise each course the vast majority of Medicine students on the study of clinical cases, teamwork and transversality, either as *speaker students* or as *listener assessor* students. In 2013/14, 52 clinical cases were offered to study. Each case was assigned to two teams, working in parallel but in an independent way.

Of the 2,442 undergraduate students enrolled in Medicine, 805 participated in 2013/14 CBS: 609 as *speakers* and 196 students of the sixth course as *tutor students*. A total of 1,690 students acted as *listener assessor* students using the form B to rate. Finally, 39 students of the sixth course acted as *tutor students for the evaluation control*, none of them had previously participated in CBS.

Some authors have indicated that the extent of student commitment and appraisal of assessment can be improved through the use of rubrics since they are useful for guiding, checking and reflecting [21]. Rubrics allow students to be better judges of their own work [25, 26]. Goodrich Andrade [27] emphasizes that collaboration between teachers and students in the design of the rubrics is key because it makes students aware of the required quality of the work.

All the rubrics used in this experience were designed together by a group of students and teachers, but the vast majority of the participating teachers and students were unaware of this tool. It is well known that formation and training is required to use rubrics properly [27-29]. However, in our case this was very difficult, because SBC mobilise a very large number of people, overwhelmingly students with full work days and overlapping schedules that prevents to gather and give them informative talks. Being aware that the majority of participants and assessors did not know what the rubrics were, we decided to transfer the information directly to every team and in every classroom using sixth-grade students acting as *tutor students for the evaluation control.*

The creation of the new figure, *the tutor student for the evaluation control,* has been a successful strategy as can be deduced from the overall results of the ratings given to these students and the opinions expressed in the satisfaction surveys.

Concerning the overall results, the experience has been satisfactory. The SBC mobilise most of the undergraduate students. In 2013/14, a third of enrolled students (805) participated in the SBC in any of the clinical cases offered (either as *speakers* or as *tutor students*) and 70% (1,690) did it as a *listener assessors*. The 39 *tutor students for the evaluation control,* personally informed to the members of 104 working teams. Despite the large number of participants, no great difficulties were found in disseminating the information to the teams, since only a few queries to the responsible person were recorded, who answered them quickly by email. Neither problems were reported in the 26 classrooms where cases were exposed nor about CBS attendance control codes nor on the electronic forms, so SBC were held normally.

Secondly, telematic evaluations were performed seamlessly. A total of 891 submissions were recorded in the form A and 1,724 in the form B, sent from the CBS exposition day until 4 weeks later. 50% of assessments in the form A were recorded during the first six days, being faster the *tutor students* (four days) and slower the *tutor teachers* (7 days). In the case of the form B, which was filled in by many more users, the data were even better: 50% of deliveries occurred between the first and fourth days, taking teachers one day more than students.

Thirdly, a very large share of the assessors achieved the satisfaction surveys (Fig. 7). This can be attributed to a good performance of the *tutor students for the evaluation control* in motivating assessors and also to the wise choice of integrating the satisfaction surveys A and B in their corresponding electronic forms. Thus, 97.8% of evaluators who have used the form A, filled the opinion survey. If we break down the percentage by category roles, 99.0% of *speaker students* answered the questionnaire, 96.4% of *tutor students* and 91.9% of the *tutor teachers*. In the case of listener evaluators, survey B was answered by 98.4% of those who employed the form B, falling to 97.1% in the *classroom teachers*.

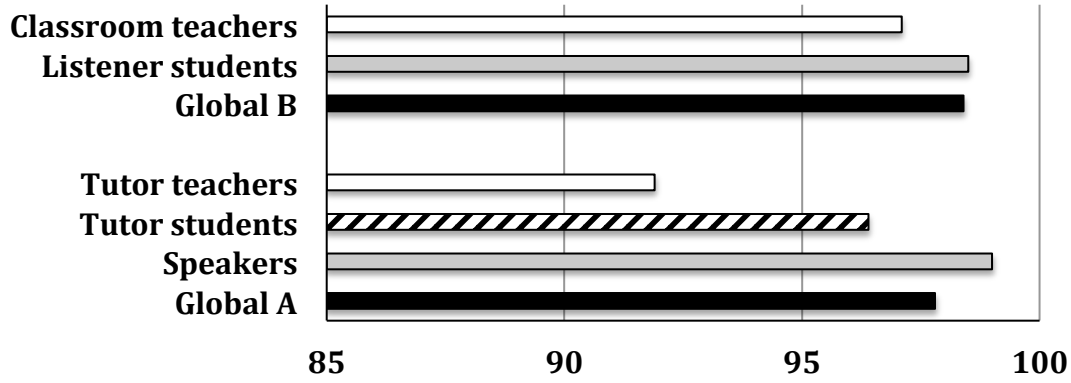

Fig. 7. Participation of evaluators (%) in opinion surveys, included together with the rubrics A and B.

If we analyze the ratings given to the *tutor students for the evaluation control*, the data are frankly good: an average of 8.93 out of 10 was given by the participants in the SBC and of 9.17 out of 10 by the exposition evaluator agents (Fig. 8).

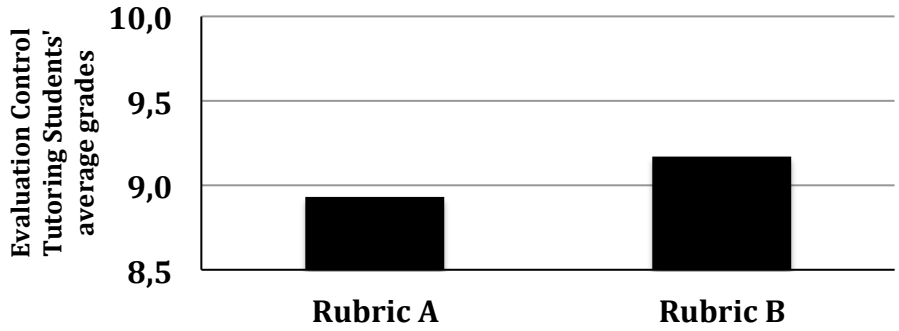

Fig. 8. Average score given to tutor students for the evaluation control.

Finally, the role played by *tutor students for the evaluation control* seems to have been enough to achieve that the participants knew the tool and its management. This is so since around 70% of survey respondents have recommended to maintain the new system (Fig. 9). However, further work is needed to improve the percentage of satisfaction and to ensure that information arrives early and clearly to everybody.

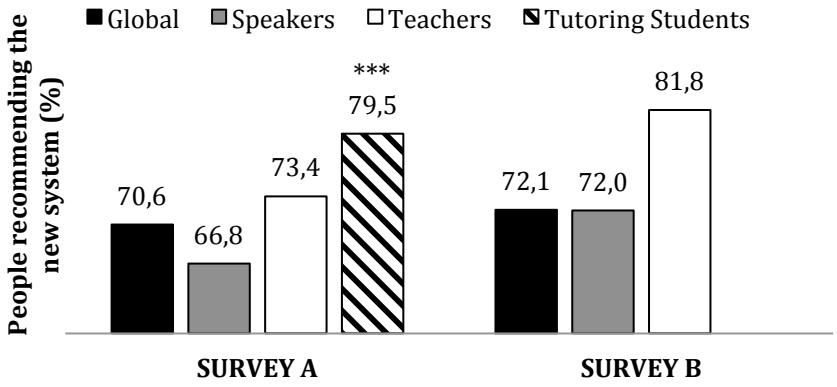

Fig. 9. Surveys A and B respondents in favour to maintain this evaluation system (*** p <0.001).

The most frequent occurrence was the lack of *classroom teachers*, a circumstance beyond the *tutor students for the evaluation control* responsibility. It is important to reflect on the difficulty to gather enough teachers, especially clinicians, to attend and assess SBC presentations and therefore to plan the strategy to solve this problem.

5 CONCLUSIONS

The SBC promote the active participation of undergraduate students under different roles: study and analysis of cases in teams (*speakers*), peer to peer guide (*tutors*) and *listener assessors*. We expect that the new evaluation model involve the students in assessment tasks, as continuous peer evaluation.

Students in sixth course, responsible for the spreading and controlling the new evaluation system, have performed their mission effectively. The results show that students are able to carry out information work properly, especially when it refers to important aspects for them, such as the evaluation procedure.

It is necessary to keep working since as Rezai and Lovorn indicate [30], to develop a quality rubric and use it effectively is not easy. These authors [31] conclude that teacher training in the use of rubrics is a key factor that influences the reliability of the instrument and the quality of feedback provided to the student.

On the other hand, Valverde and Ciudad [16] pointed out that the appraisals on the rubrics for competences assessment are different between students and teachers. Therefore, in order to implement the evaluation in the following courses, it is necessary to plan an appropriate strategy for each assessor agent.

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